

IN THE CLAIMS

Amendments to the claims are indicated in comparison the last formal amendment filed on August 29, 2003.

1-14. (cancelled)

15. (thrice amended) A composite membrane useful for reverse osmosis or nanofiltration comprising:

a supportive porous under-structure; and

a top layer consisting of a crosslinked polyamide thin film which is adhered to the upper surface of the porous support structure, said top layer having been contacted with a solution of a C₁-C₆ alkyl, alkenyl, haloalkyl, haloalkenyl, or hydroxy ~~or aryl~~ sulfonic or disulfonic acid compound,

whereby said membrane has a water flux of at least about 15 gfd and a rejection of at least 20 percent when tested an a 0.05 percent aqueous sodium chloride at 75 psi and 25°C.

16. (once amended) A composite membrane as in Claim 15 wherein said crosslinked polyamide comprises the reaction product of an aromatic diamine or triamine and an aromatic triacyl halide.

17. (once amended) A composite membrane as in Claim 16 wherein said crosslinked polyamide comprises the reaction product of an aromatic diamine or triamine, an aromatic triacyl halide and an aromatic diacyl halide.

18. (once amended) A composite membrane as in Claim 15 wherein the porous support is a polyarylethersulfone.

19. (once amended) A composite membrane as in Claim 15 wherein said first membrane comprises a thin film, flat sheet, hollow fiber or tubular membrane.

20. (once amended) A composite membrane as in Claim 15 wherein the membrane is a component of a spiral-wound membrane filter or a plate and frame filter.

21. (thrice amended) A composite membrane as in Claim 15 wherein said organic sulfonic or disulfonic acid compound comprises a sulfoacetic, sulfosuccinic, ~~hydroxybenzene sulfonic, methane sulfonic~~ methanesulfonic, ethanedisulfonic, or hydroxybutane sulfonic, ~~benzenedisulfonic, dihydroxy benzene sulfonic or dihydroxy benzene disulfonic~~ compound or mixtures thereof.

22. (cancelled)

23. (twice amended) A composite membrane as in Claim 15 wherein said organic sulfonic acid compound comprises methanesulfonic acid, trifluoromethanesulfonic acid or a mixture thereof.

24. (cancelled)

25. (once amended) A composite membrane as in Claim 15 wherein said solution of an organic sulfonic acid compound comprises said organic sulfonic acid compound dispersed or dissolved in water, alcohol, glycol, alkoxy alcohol or a carboxylic acid or a mixture thereof.

26. (cancelled)

27. (new) A composite membrane as in Claim 15 wherein said organic sulfonic acid compound comprises ethanesulfonic acid.

28. (new) A composite membrane as in Claim 15 wherein said organic sulfonic acid compound comprises trifluoromethanesulfonic acid.

29. (new) A composite membrane useful for reverse osmosis or nanofiltration comprising:

a supportive porous under-structure; and

a top layer consisting of a crosslinked polyamide thin film which is adhered to the upper surface of the porous support structure, said top layer having been contacted with a solution of a C₁-C₆ alkyl, alkenyl, haloalkyl, haloalkenyl, or hydroxy sulfonic or disulfonic acid compound,

whereby said membrane has a water flux of at least 15 gfd and a rejection of at least 20 percent when tested an a 0.05 percent aqueous sodium chloride at 75 psi and 25°C.

30. (new) A composite membrane as in Claim 29 wherein said crosslinked polyamide comprises the reaction product of an aromatic diamine or triamine and an aromatic triacyl halide.

31. (new) A composite membrane as in Claim 30 wherein said crosslinked polyamide comprises the reaction product of an aromatic diamine or triamine, an aromatic triacyl halide and an aromatic diacyl halide.

32. (new) A composite membrane as in Claim 29 wherein the porous support is a

polyarylethersulfone.

33. (new) A composite membrane as in Claim 29 wherein said first membrane comprises a thin film, flat sheet, hollow fiber or tubular membrane.

34. (new) A composite membrane as in Claim 29 wherein the membrane is a component of a spiral-wound membrane filter or a plate and frame filter.

35. (new) A composite membrane as in Claim 29 wherein said organic sulfonic or disulfonic acid compound comprises a sulfoacetic, sulfosuccinic, methanesulfonic, ethanesulfonic, or hydroxybutane sulfonic, compound or mixtures thereof.

36. (new) A composite membrane as in Claim 29 wherein said organic sulfonic acid compound comprises methanesulfonic acid, trifluoromethanesulfonic acid or a mixture thereof.

37. (new) A composite membrane as in Claim 29 wherein said solution of an organic sulfonic acid compound comprises said organic sulfonic acid compound dispersed or dissolved in water, alcohol, glycol, alkoxy alcohol or a carboxylic acid or a mixture thereof.

38. (new) A composite membrane as in Claim 29 wherein said organic sulfonic acid compound comprises ethanesulfonic acid.

39. (new) A composite membrane as in Claim 29 wherein said organic sulfonic acid compound comprises trifluoromethanesulfonic acid.